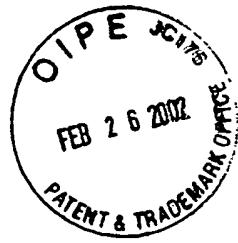


1733



Patent
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: ANDERSON, CONRAD V.
 Application No.: 09/759993 Group Art Unit: 1733
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 Title: ADHESIVE FILM REMOVAL METHOD AND APPARATUS

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Dear Sir:

Further to our Supplemental Information Disclosure Statement of December 18, 2001,
please find enclosed translation of FR 2643487.

Respectfully submitted,

24 JAN 2002
Date

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TC 1700

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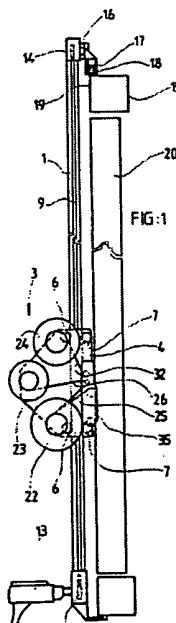
References to other related national documents

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Apparatus of removing and/ or hanging (installing) precut poster strips (bands) on advertising billboards (panels).

This apparatus makes it possible to remove and/ or hang precut poster strips simultaneously, wound end to end and intended for static or animated advertising billboards of the revolving prism type.

It consists of a pole 1 made up of a tubular section likely to be suspended, by a gantry 17, to the high crosspiece 15 of the advertising and being used as a guidance rail to a towed carriage 3 tractor drawn along the aforementioned pole by a notched strap 11 driven by an electric motor 13 and guided, to the extremities of the pole, by notched pulleys 12, 14, the aforementioned carriage 3 supporting a first spool 24 intended to collect the poster strips 32 to remove, a second spool 23 receiving the film 26 of protective paper and a third spool 22 on which are coiled the poster strips 25 in order to hang.



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Apparatus for removing and for hanging (installing) precut posters strips (bands) on advertising billboards.

The present invention relates to an apparatus making it possible to remove and / or to hang, simultaneously or independently, poster strips on a plane support, for example, but not exclusively, on the sides (faces) of revolving prisms of animated advertising billboards.

This apparatus can use reels of precut poster strips and placed end to end on a continuous, two-sided, adhesive support with guided protective paper (*or protective paper guide*), as those obtained with the machine, subject of the French patent application N° 88.07052, or of the posters cut out and hung on a support with adhesive meshes, or of the strips having a paper face and a pasted face.

The known display panels, in particular those with turning prisms, allow, by successive exposure of all their faces, to reconstitute and to show several images and/or messages.

Currently, the installation traditionally takes place by joining the poster on the panel. If the panel is with revolving prisms, the poster is cut out again on the level of the interstices separating the prisms. After rotation of the prisms, one pastes the apparent faces and one applies another poster that one cuts out again.

This process presents numerous disadvantages. The cut after the installation is often of bad quality, for wet paper tends to tear. The operator must have recourse to a scale in order to proceed to the cut. Often some adhesive residues fall into the drive means and damage them. The superposition of the posters creates extra thickness disturbing the operation of the prisms.

In order to mitigate these difficulties, one planned to proceed, either with the removal of the prisms, or the removal of clipped (*?unk word*) faces on an axis and reconstituting the prism. But these solutions are also very heavy and constraining, for one needs two men to remove the prisms on the site, to load them in a vehicle in order to transport them to the workroom, to unload them and put them in a humidification vat, to scrape the old posters, to hang the prisms, or the blades on a gauge, to hang the new posters, to make them dry and to cut them out with the width of the prisms and that on each face, finally to put the prisms or the blades in a vehicle for the return to the site and to raise the prisms or the blades.

On the contrary, the apparatus, subject of the invention, makes it possible to replace a poster, whatever the place (location), by only one operator and in a total time comparable with that currently devoted by means of the " adhesive-brush " process.

This apparatus primarily includes a tubular pole likely to be suspended on the high cross-piece of the billboard and being used as a guide rail by a tractor drawn carriage along the aforementioned pole by a belt or a chain driven by an electric motor, the aforementioned carriage supporting a first reel intended to collect the strips of removed posters, a second reel receiving protective paper and a third reel of poster strips to be put up.

According to a characteristic of the invention, the carriage is composed of a deck (turntable) made up of, on one of these faces, four rollers that roll by pairs on two on the sides opposite of the tubular pole and are guided on it by some grooves made in the aforementioned sides and, on the other face, the reel of poster strips to be hung, that with guided protective paper and the drum collecting the poster strips to be removed, these elements being assembled overhanging to facilitate the accessibility of it.

According to another characteristic of the invention, the carriage is comprised of two pressure rollers of the poster strips to be installed, a guidance roller that facilitates the separation of protective paper, a roller for pulling up, poster strips to be removed involved (induced), with the rise only, by a free wheel and a travelling pinion on a chain forming a toothed rack and located in the pole, the aforementioned roller ensuring the rotation of the reel of poster strips to be removed and that of the reel of protective paper. These rollers are fixed under the reels and support two cheeks ensuring the guidance of the carriage by using the interstices between the prisms like slides.

According to another characteristic of the invention, the support pole of the carriage is coupled, at its high end (extremity), a gantry provided with two rollers with rolling gorge (groove) on a section of guidance fixed on the higher cross-piece of the billboard and over its entire length, the pole and the gantry fixed or being articulated between them to ensure good parallelism of the unit.

The details of this apparatus will be better understood by the following description referring to the annexed drawings, showing as an indication, nonrestrictive, a practical realization of the invention.

Figure 1 is a reduced scale view of the apparatus of which it is necessary (it is a matter of) in position of work on an advertising billboard prism from the side. Figure 2 is a front view of it.

Figure 3 shows, from an elevated view and on a larger scale, the carriage reel stand.

Figure 4 is a view of it from above (over) with parts removed (torn off) to show the lower elements.

On the drawings, reference mark 1 indicates the pole-rail made up of a circular, square or rectangular section of profiled tubular. Two of its opposed faces are dug grooves in parallel 2 for the guidance of the carriage reel stand referred in general by reference mark 3.

This carriage, more particularly detailed figures 3 and 4, includes a deck 4. One of its cheeks 5 is comprised of four rollers 6, 7 whose rims 8 penetrate in grooves 2 cutting out two of the faces of pole 1. The rollers 6 are pressed on the higher face, while rollers 7 roll on the lower face, which ensures guidance and maintenance of the aforesaid carriage during its alternative displacement along the pole 1.

Another face of the pole 1, perpendicular to the preceding ones dug grooves 2, also comprises a groove 9 for the passage of the fastening (binding) fingers of 10 of deck 4 at the ends of a notched, adjustable, driving belt 11 in tension and pulled by a crenellated pulley 12 located at the lower part of the pole 1 and whose hollow axis receives the driving shaft of an electric drive means such as 13 represented in figures 1 and 2.

This motorization is with two directions of rotation allowing the outward journey and return of carriage 3 along pole 1. The rate of travel of carriage 3 and the couple necessary are variable and adjustable by the manipulator. The startings are also progressive and a torque limiter prohibited all overload of the drive means, in particular in high and low race end.

With the higher part of pole 1, the driving notched belt 12 is guided by another crenellated pulley 14.

The pole-rail 1 is suspended on the high cross-piece 15 of the billboard by a gantry which is coupled to it by elastic studs 16 and which comprises a cover 17 supporting two rollers 18 with gorge likely to roll on wing 19 of a section of your cross-piece 15 of the animated panel. A light articulation between cover 17 and the end of pole 1, makes it possible to carry out good parallelism of the apparatus compared to the prism faces and to the prism edges 20 of the billboard.

On face 21 of deck 4 are fixed, overhanging, the axes of three reels 22, 23 and 24. The reel 22, assembled on an expansion mandrel, supports pre-cut poster strips 25 and fixed end to end on a double-faced, continuous support adhesive, with protective inserted paper film 26.

Reel 23, also assembled on an expansion mandrel, progressively ensures the winding of the protective film 26 with the unwinding of the reel 22.

Reel 24, also assembled on an expansion mandrel, receives the poster strips 32 in order to remove faces of prisms 20 of the billboard.

The reel chucks 23 and 24 are rotated by round belts with slip 27 controlled by a cylinder 28 known as (said) pulling of the poster strips 32 to remove, which are barred (?unk word), before winding, by roller 29. Cylinder 28 is pulled by a pinion toothed 30 gearing with a chain 31 playing the part of toothed rack inside of pole 1, a free wheel prohibiting the opposite rotation of cylinder 28 on the descent in order to avoid unreeling.

Moreover, the carriage is made of two rollers of pressure 34 to ensure the catch of the poster strips adhesive 25 in order to hang on one of the turning prism faces 20. As for film 26 of protective paper, it is separated from the poster strips on the level of a roller of turning 33.

Cylinder 28 and rollers 29, 33 and 34 are fixed by axes at cheek 21 of deck 4 support of reels 22, 23 and 24, as fig. 3 and 4 show it.

At the end of these rollers 29, 33 and 34 are retained two vertical cheeks 35 intended to fit in the interstices remaining between the revolving prisms 20 playing the part of slides of additional guidance of carriage 3.

The reel 22 is charged and positioned on carriage 3. The installation begins with one from the ends from the billboard and finishes with the other. Strip (band) 32 of the old poster is removed automatically during the rise of carriage 3 and, at once, is rolled up on the reel tractor by slip 24. Strip 25 of the new adhesive poster, resulting from reel 22 is separated from the protective film 26 that is rolled up on the reel tractor with slip 23, progressively with the installation of band 25 which is pressed on the face of the turning prism 20 by means of rollers 34.

It is planned to adapt a device of heating the prism or the poster; in the same way, one can foresee to adapt a drying system for the surface of the prisms, without deviating from the framework of the invention.

Claims

1 - Apparatus allowing to remove and/or to hang, simultaneously or independently of the precut poster strips wound end to end on a continuous two-sided adhesive support with guided, protective paper film or on a support with adhesive meshes or tapes comprising a paper face (side) and a pasted face and intended for static or animated billboards, the kind with revolving prisms, characterized by the fact that it includes a pole (1) made up of a tubular section likely to be suspended, by a gantry (17), on the high cross-piece (15) of the billboard and being used as guide rail with a carriage (3) tractor drawn along the aforementioned pole by a notched belt (11) driven by an electric motor (13) and guided, at the ends of the pole, by crenellated pulleys (12,14), the aforementioned carriage (3) supporting a first reel (24) intended to collect the poster strips (32) in order to remove, a second reel (23) receiving the film (26) of protective paper and a third reel (22) on which are wound the poster strips (25) in order to hang the aforementioned comprising carriage (3) of the means (6,7,35) authorizing its guidance along the pole (1) means (34) in order to press the poster strips to be hung against the advertising medium or the faces of the revolving prisms (20).

2 - Apparatus according to claim 1, characterized by the fact that the carriage (3) consists of a comprising deck (4), on one of its faces (5), two pairs of rollers (6,7) travelling out of two on the opposite sides of the pole (1) dug of grooves (2) in which engage the rims (8) of the aforesaid rollers and of a side groove (9) for the passage of two fingers (10) to which are fixed the ends of the belt tractor (11) operating inside the aforementioned pole.

3 - Apparatus according to claims' 1 and 2, characterized by the fact that the other face (21) of the turntable (4) of the carriage (3) supports, overhanging, the axes of the reels (22,23,24) and, under them, two roller-pressers (34), a roller (33) of guidance and separation of protective film (26) being rolled up on the reel (23), a roller (28) of pulling up of the poster strips to be removed (32) being rolled up on the reel (24) and a guidance roller (29).

4 - Apparatus according to claims 1 and 3, characterized by the fact that the roller (28) is made driving in only one direction by means of a toothed pinion (30) gearing a chain fixed inside the pole (1), the aforementioned roller assembled on free wheel rotating the reel (23) protective film (26) and winds it (24) bands of posters torn off (removed) (32) by belts (27).

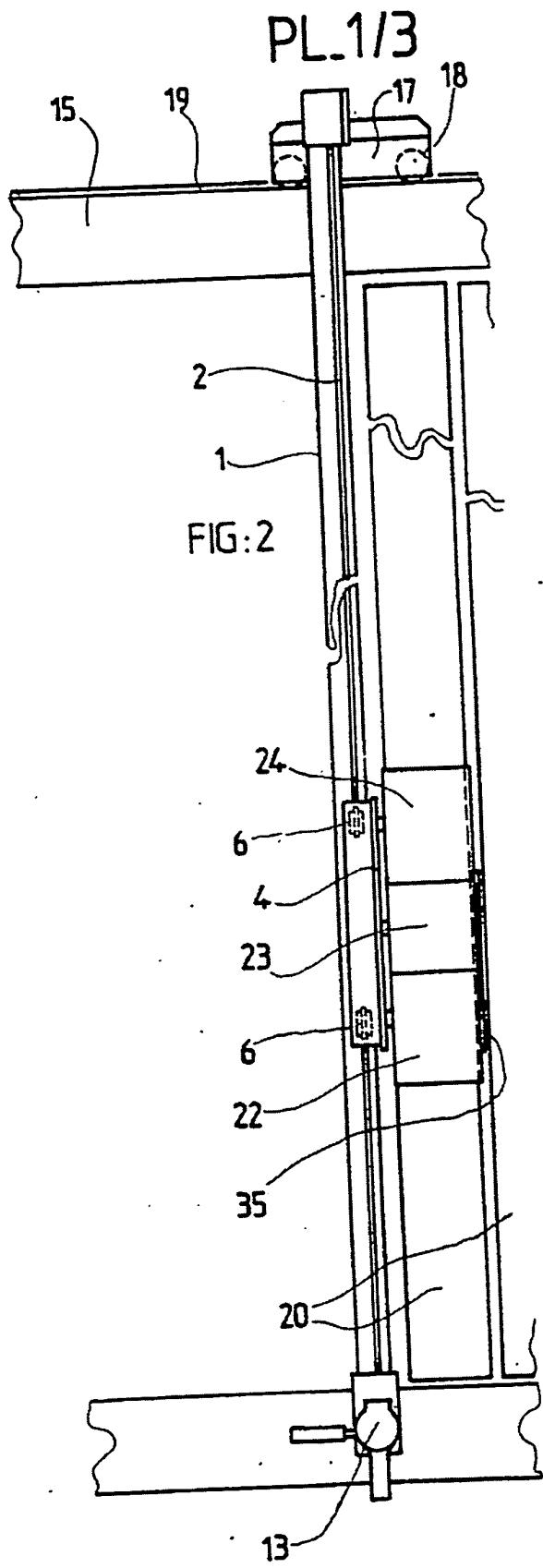
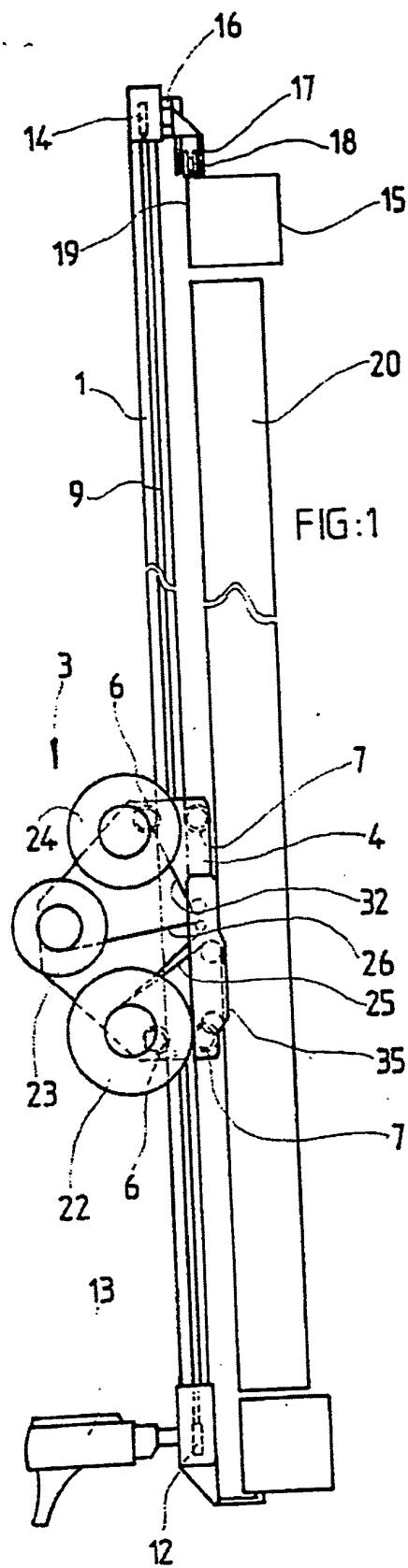
5 - Apparatus according to claims 1 and 3, characterized by the fact that two cheeks (35) attached to the ends of the rollers (28,29,33, 34) are intended to fit in the interstices remaining between the revolving prisms (20) and supplementing the guidance of the carriage (3).

6 - Apparatus according to claim 1, characterized by the fact that the high end of the pole (1) is equipped with a gantry made up of a cover (17) retaining two rollers with groove (18) likely to roll on the vertical wing of a section (19) of the higher cross-piece (15) of the billboard, the aforementioned gantry fixed or being articulated to the pole by elastic studs (16) authorizing the adjustment of the parallelism of the apparatus to the elements of the billboard.

7 - Apparatus according to claim 1, characterized by the fact that the motorization of the carriage (3) reel stand, is ensured by a removable electric motor (13) by two directions of rotation at variable speed and torque limiter, whose tree takes nut (?unk word) in the axis of the crenellated pulley (12) involving the notched belt (11) associated to the said carriage.

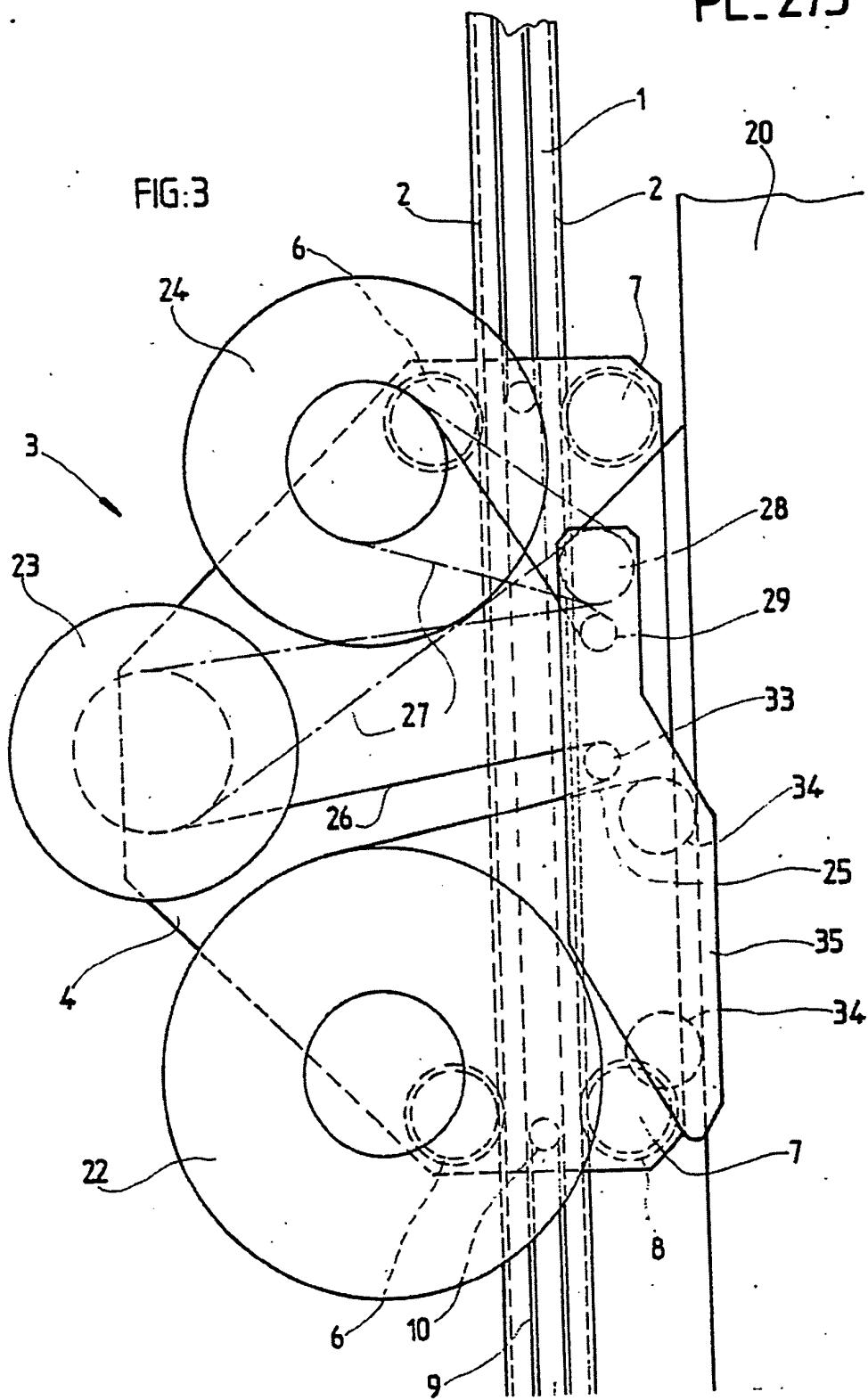
8 - Apparatus according to any of the preceding claims, characterized by the fact that it comprises a heating device of the poster or the prism.

9 - Apparatus according to any of the preceding claims, characterized by the fact that it is equipped with a drying device on the surface.



PL. 2/3

FIG.3



PL. 3/3

